



**TARIFF COMMISSION**  
**GOVERNMENT OF INDIA**

**Report on the Continuance of  
Protection to the Piston Assembly  
(Pistons, Piston Rings and Gudgeon  
Pins) Industry**

**B O M B A Y 1957**

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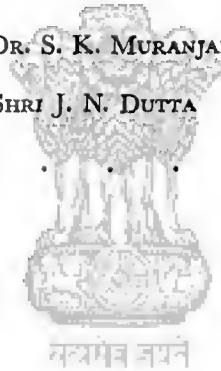
### PERSONNEL OF THE PANEL WHICH HEARD THE CASE

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GOVERNMENT OF INDIA  
MINISTRY OF COMMERCE AND INDUSTRY

**RESOLUTION**

TARIFFS

*New Delhi, the 24th July, 1957.*

**No. 79(1)-TP/57.**—The Tariff Commission has submitted its Report on the continuance of protection to the Piston Assembly (Pistons, Piston Rings and Gudgeon Pins) Industry on the basis of an inquiry undertaken by it under Sections 11(e) and 13 of the Tariff Commission Act, 1951. Its recommendations are as follows :—

- (i) Protection to the industry should be continued till 31st December, 1960 and the existing rates of duty maintained.
  - (ii) The Indian Standards Institution should endeavour to finalise standard specifications for pistons, piston rings and gudgeon pins as early as possible.
  - (iii) India Pistons Ltd. should make determined efforts to tighten its inspection procedure and to ensure that no complaints on this account are made by any class of consumer.
  - (iv) India Pistons Ltd., should endeavour to rationalise its production programme and concentrate efforts on the manufacture of such types and sizes as are most in demand in the replacement market for all internal combustion engines, automotive as well as stationary.
  - (v) The indigenous manufacturers of automobiles, motor cycles and scooters, diesel engines (both automotive and stationary) and of other types of internal combustion engines should expedite their negotiations with India Pistons for obtaining their requirements of piston assemblies from the Company.
2. Government accept recommendation (i) and necessary legislation will be undertaken in due course.
3. Government also accept recommendation (ii) and will take suitable steps to implement it as far as possible
4. The attention of India Pistons Ltd. is invited to recommendations (iii) and (iv).
5. The attention\* of the indigenous manufacturers of automobiles, motor cycles and scooters, diesel engines (both automotive and stationary) and of other types of internal combustion engines is invited to recommendation (v).

**ORDER**

**ORDERED** that a copy of the Resolution be communicated to all concerned and that it be published in the *Gazette of India*.

S. RANGANATHAN,  
*Secretary to the Government of India.*

## REPORT ON THE CONTINUANCE OF PROTECTION TO THE PISTON ASSEMBLY (PISTONS, PISTON RINGS AND GUDGEON PINS) INDUSTRY

The first inquiry into the claim of piston assembly industry to protection was undertaken by the Tariff Commission in 1955. In its Report submitted to Government in May, 1955, the Commission recommended that protection should be granted to the industry till 31st December, 1957, by levying a protective duty of 50 per cent *ad valorem* standard, on trunk piston assemblies of 6" diameter and below and piston rings (excluding chromium plated rings) and gudgeon pins required for such piston assemblies imported separately, the preferential rate of duty being fixed in accordance with the India-U.K. Trade Agreement. This recommendation was accepted by the Government of India in the Resolution of the Ministry of Commerce and Industry No. 79(1)-T.B/55, dated 23rd November, 1955. Protective duties at 50 per cent *ad valorem* standard, and 42½ per cent *ad valorem* preferential were imposed on trunk piston assemblies of diameter 6" and below, trunk piston rings (excluding chromium plated rings) of diameter 6" and below and gudgeon pins for trunk pistons of diameter 6" and below, provided that the articles are adapted for use as parts and accessories of internal combustion engines of all kinds but excluding such articles as are adapted for use exclusively as parts and accessories of internal combustion engines of agricultural tractors and aeroplanes. Subsequently, by the Indian Tariff (Third Amendment) Act, 1955, protection was granted to the industry upto 31st December, 1957 at the rates of duty mentioned above.

2. The present inquiry was undertaken under Section 11(e) read with Section 13 of the Tariff Commission Act, 1951, which empowers the Commission to take action in relation to the protection granted to an industry, with a view to its increase, decrease, modification or abolition according to the circumstances of the case.

3.1. On 25th February, 1957, a press note was issued requesting firms, persons and associations interested in the industry to obtain copies of the relevant questionnaires from the Commission and submit their replies. Questionnaires were also issued to producers, importers and consumers. Information relating to c.i.f. prices and landed costs of specified types of piston assemblies, pistons, piston rings and gudgeon pins was sought from the Collectors of Customs at the principal ports. The Chief Industrial Adviser, Development Wing, was requested to furnish a detailed memorandum on the progress made by the industry since the last inquiry and its present position. The Development Commissioner of Small Scale Industries was requested to furnish the Commission with available information on the small scale section of the industry. The Director General of Supplies and Disposals, New Delhi, and

the Ministries of Defence, Irrigation and Power, Food and Agriculture and Transport were also requested to furnish certain data relevant to the inquiry. The Directors of Industries with the Governments of Madras and Punjab were addressed for factual information relating to the progress and present position of the industry in their respective States. Information was obtained from the Indian Standards Institution about the progress made in formulating standard specifications for pistons, piston rings and gudgeon pins as recommended by the Commission in its last Report. A list of those to whom questionnaires were issued and of those who replied or submitted memoranda is given in Appendix I.

3.2. Shri K. R. Damle. I.C.S., Chairman and Shri C. Ramasubban, Dr. S. K. Muranjan and Shri J. N. Dutta, Members, visited the factory of India Pistons Ltd., Madras on 22nd March, 1957. Shri Ramasubban visited the factory of Hindustan Pistons Ltd. (a small scale unit in Madras city) on 30th April, 1957.

3.3. Shri S. V. Rajan, Cost Accounts Officer of the Commission, visited the factory of India Pistons Ltd., from 27th January to 7th February, 1957 and examined the costs of production of piston assemblies and components thereof manufactured by the firm.

3.4. The public inquiry into the industry was held at the Commission's office in Bombay on 23rd April, 1957. A list of persons who attended the inquiry is given in Appendix II.

4.1. The present scheme of protection to the piston assembly 4. scope of the inquiry industry is restricted to :—

- (a) trunk piston assemblies of diameter 6" and below ;
- (b) trunk pistons of diameter 6" and below ;
- (c) trunk piston rings (excluding chromium plated rings) of diameter 6" and below ; and
- (d) gudgeon pins required for trunk pistons of diameter 6" and below.

4.2. We have received representations from the industry to enlarge the scope of the present inquiry to cover chromium plated rings and cylinder liners (wet and dry). The Development Wing, however, is of the view that since the last inquiry, no change has taken place to warrant any change in the scope of the inquiry. The question was also discussed with the representatives of various interests present at the public inquiry. We were informed that Goetze (India) Private Ltd., proposes to undertake shortly the manufacture of chromium plated rings, but we feel that it is not necessary to include such rings within the scope of the present inquiry. In regard to cylinder liners, we would prefer to hold a separate inquiry, if necessary. Consequently, the scope of the inquiry remains unaltered.

5.1. The main recommendations made by the commission in its last Report (1955) relating to the period of protection and the rates of protective duty have already been dealt with in paragraph 1. The ancilliary recommendations of the Commission, which were also accepted by Government, are listed below, together with brief statements regarding the extent to which each one of them has been implemented so far.

**5. Recommendations of the Commission in its last Report (1955) and the extent to which they have been implemented so far**

5.2. "Indian Standards Institution should endeavour to finalise standard specifications for pistons, piston rings and gudgeon pins as early as possible."

We understand from the Indian Standards Institution that although the formulation of standards for pistons, piston rings and gudgeon pins was initiated some years ago, Government's decision to change over to the metric system necessitated a re-examination of the draft standards, particularly in respect of manufacturing dimensions. Further, the emergence of another unit, namely, Goetze (India) Ltd., New Delhi, also necessitated changes in the draft. The Institution has expressed the view that it might take some more time before standards for piston rings could be published and that "as the preferred sizes of pistons depend on piston rings", there would be consequential delay in the standardization of pistons and other associated components.

5.3. "Government should make arrangements with the Collectors of Customs and the D.G.C.I. & S. to record the imports of trunk piston assemblies and the component parts thereof separately."

This recommendation has been implemented and statistics of imports of trunk piston assemblies and their component parts are being recorded separately by the Collectors of Customs and the Director General of Commercial Intelligence and Statistics, Calcutta from January, 1956.

5.4. "Government should make arrangements for the periodical testing of the quality of indigenous pistons, piston rings and gudgeon pins."

"India Pistons Ltd., should forward samples of their pistons, piston rings and gudgeon pins to the Indian Institute of Science, Bangalore for having them tested thoroughly."

We have been informed that India Pistons Ltd., had forwarded samples of its products to the Indian Institute of Science, Bangalore, and that it is in correspondence with the latter as regards the actual testing which depends on the availability of corresponding engines with the Institute. The Development Wing has recently addressed the indigenous automobile manufacturers to provide the Institute with their petrol engines so that adequate testing facilities might be made available at the Institute for test of all engine components as and when they are indigenously developed.

5.5. "So long as import control is maintained for balance of payments considerations, Government should regulate imports of trunk pistons of diameter 6" and below and trunk piston rings and gudgeon pins required for such trunk pistons so as to ensure that only such quantities will be allowed to be imported as are necessary to bridge the gap between the estimated domestic demand for various types and specifications and the indigenous production of such types and specifications."

"Imports of pistons, piston rings and gudgeon pins of types and specifications which are not included in the present or proposed manufacturing programme of India Pistons Ltd., or are required for engines which were manufactured before 1938, should be allowed until India Pistons Ltd., begin to manufacture them."

Government stated in their Resolution that they had taken note of these recommendations and that these as well as other relevant considerations would be taken into account while framing the import control policy from time to time. It appears from the import licensing policy described in paragraph 11.1.1 that the above recommendations were taken note of by Government in formulating the policy.

5.6. "India Pistons Ltd., should complete their negotiations with Aluminium Manufacturing Co. Ltd., and start using indigenous aluminium castings as early as possible."

The Aluminium Manufacturing Co. Private Ltd., Calcutta, has informed us that negotiations between it and Indian Pistons Ltd., did not materialise. The latter firm has reported to us that its own Aluminium Foundry is in process of being established and that it is expected to go into production by the end of 1957.

5.7. "The domestic industry should be required to charge selling prices in fair relation to its costs, to diversify its production so as to meet the requirements of domestic consumers to the widest possible extent and to begin the use of indigenous aluminium castings as early as possible."

India Pistons Ltd., has reported that it has diversified its production to meet the requirements for all types which can be produced economically. In regard to the use of indigenous aluminium castings, the position is explained in paragraph 5.6. No complaints have been received from any quarter that the selling prices fixed by India Pistons are excessive.

5.8. "The manufacturers of piston assembly, pistons, piston rings and gudgeon pins should also adopt the practice usually followed in foreign countries of supplying their products for use as original equipment at concessional prices."

India Pistons Ltd., has stated that it has implemented this recommendation.

5.9. "The indigenous manufacturers of pistons, piston rings and gudgeon pins should set up an adequate sales organisation so as to enable the consumers in different parts of the country to obtain their requirements and should also maintain adequate stocks of the various types and specifications of pistons, piston rings and gudgeon pins required by the consumers."

India Pistons Ltd., claims to have set up an adequate Sales and Distribution Organisation to service the requirements of users throughout the country. Its products are supplied direct to engine



manufacturers and Government Departments. As for the replacement trade, sales are made by the Company through its Distribution Organisation with headquarters at Bombay, Calcutta, Delhi and Madras and dealers spread all over the country. Permanent technical sales representatives are stated to have been stationed in Madras, Calcutta, Delhi and Bombay to give after-sales service to all the firm's customers throughout the country.

6.1. As was the case at the time of the last inquiry, there are two companies licensed for the manufacture of piston assembly and parts thereof, namely, India Pistons (Private) Ltd., Madras and Goetze (India) Private Ltd., New Delhi. Brief particulars regarding these two units are given below :—

6.2. *India Pistons (Private) Ltd., Madras.*—The factory is located in Sembiam, a suburb of Madras. The Company manufactures pistons (cast iron and aluminium) and rings (excluding chromium plated rings) of 6" diameter and below, and gudgeon pins for pistons of its own manufacture. It commenced production of piston rings in June, 1950, pistons in 1952, gudgeon pins in October, 1954 and expander type rings (Duaflex rings) in 1955. Its cast iron foundry was established in 1951 and aluminium foundry early this year; the latter is expected to be in operation by the end of this year. The Company has entered into technical collaboration with Associated Engineering Holdings Ltd., of the United Kingdom, for a period of 20 years. The Associated Engineering Holdings Ltd., is a joint enterprise of four leading manufacturers of the U.K., namely, Hepworth & Grandage Ltd., Bradford, Wellworthy Ltd., Lymington, Bricovmo Ltd., Yorkshire, and Leeds Piston Rings and Engineering Co. Ltd., Yorkshire. The products covered by the agreement are pistons, piston rings, gudgeon pins, centrifugal pot castings, cylinder liners, piston and liner castings, tappets, valve guides and valve seats. An engineering fee of 5 per cent of the invoice price of every item manufactured and sold or used by the Company is payable to the Associated Engineering Holdings Ltd. The foreign collaborators have agreed to train apprentices from India in their factories in U.K., supply machinery and equipment, designs and technical data and provide the Indian Company with up-to-date information regarding manufacture and research. The authorised capital of India Pistons (Private) Ltd., is Rs. 30 lakhs, the subscribed capital, which is fully paid up, being Rs. 25 lakhs. M/s. Amalgamations (Private) Ltd., Madras hold 83½ per cent of the shares, the balance being held by the foreign associates, Associated Engineering Holdings Ltd. The total number of Directors are six, of whom four are non-Indian and two Indian. The total number of labourers employed in 1954, 1955 and 1956 were 592, 675 and 827 respectively. There were four non-Indian Management Personnel in 1954, four in 1955 and one in 1956.

6.3. *Goetze (India) Private Ltd., New Delhi.*—This is a private limited company with its factory located at Bahadurgarh, Punjab; it was granted licence under the Industries (Development and Regulation) Act, 1951 for the manufacture of piston rings. Since then, schemes for the manufacture of aluminium pistons and gudgeon

pins have been provisionally approved, but the terms of collaboration with foreign companies are still reported to be under the consideration of Government. The authorised capital of the Company is Rs. 65 lakhs and the subscribed and paid up capital, Rs. 13.30 lakhs. All the paid-up capital is held by Indians except Rs. 10,000 which is held jointly by an Indian national with a foreign national. The formalities for issuing Rs. 2 lakhs worth of ordinary shares to Goetzewerke Friedrich Goetz A. G. (who are the foreign collaborators), as per the terms of the agreement approved by the Government of India, are reported to be under way. The above mentioned German Company has agreed to give technical assistance for a period of 20 years for the manufacture of the products undertaken by the Indian Company. It has also agreed to supply machinery and technical data, provide testing and research facilities and allow the use of its patents by the Indian Company. Goetze (India) Private Ltd., has to pay its associates a royalty of 3 per cent on the net value of piston rings manufactured and sold by it. The Company expected to go into production early in 1956 but has not done so. We have been informed that production will commence in July 1957 and will include the manufacture of chromium plated rings.

6.4. In addition to the above two companies, Hindustan Motors Ltd., Calcutta, manufactures pistons for use in engines of its own manufacture. There are, besides, some small engineering units which manufacture pistons and other component parts of pistons assembly according to orders, but details of their capacity, production etc., are not available. Mention may be made of (1) Kulko Engineering Works Ltd., Ichalkaranji, Kolhapur District, which manufactures pistons (for Imani diesel engines) and piston rings. (2) Precision Metal Works, Dharwar which manufactures pistons for diesel engines from 50 to 1500 B.H.P. and for smaller H.P. diesel engines upto 23 B.H.P., and piston rings for higher rated engines with cylinder diameter of 6" and above. The castings for pistons are obtained from M/s. Kirloskar Ltd., Mysore, (3) Hindustan Pistons Ltd., situated in Mount Road, Madras, which is reported to be a small scale unit with a capital of Rs. 1.55 lakhs engaged in the manufacture of aluminium alloy pistons, with alloy obtained from indigenous sources.

6.5. We are also informed by the Director, Small Industries Service Institute, New Delhi that the undermentioned small scale units in the Northern Region manufacture liners and piston assemblies.

1. Slakun Engineering Works, Delhi.
2. Paramount Engineering Works, Delhi.
3. Chandaliya Engineering Works, Agra.
4. Sharma Engineering Works, Agra.
5. Jain Engineering Works, 9/13, City Street, Agra.
6. Jain Engineering Works, Pratpura, Agra.
7. Bhartiya Industrial Corporation, Agra.
8. India Spares, Agra.
9. Steel Gate Piston & Rings Industries, Agra.
10. Universal Steel Industry, Agra.

**7.1. Rated capacity.**—The annual rated capacity of India Pistons Ltd., on single shift basis at the time of the last inquiry was stated to be :

Pistons . . . . .	3.60 lakhs
Piston rings . . . . .	18.00 lakhs
Gudgeon pins . . . . .	4.80 lakhs

Since then new equipment for the manufacture of expander type of rings in the Duaflex ring department has been established in the Company's factory. The Company has stated that its present capacity is as follows :—

	(in lakhs)	
	Single shift	Double shift
Pistons . . . . .	3.00	5.25
Piston rings . . . . .	22.80	39.90
Gudgeon pins . . . . .	5.60	6.30

With regard to the reduced figure of capacity for pistons and gudgeon pins, India Pistons attributes this to the wider range of large diameter pistons now manufactured by it to meet the demand of consumers. It has also stated that short runs and inefficiency of labour hinder the realisation of maximum capacity which was stated to be 3.6 lakhs in 1955. As regards the increased capacity for the manufacture of piston rings from 18 lakhs to 22.8 lakhs, the representative of India Pistons admitted at the public inquiry that sanction from Government had not been obtained and this explains the fact that the Development Wing has not recognised the revised figure. The Company was advised to apply for sanction of Government immediately for the increased capacity relating to rings. We have, in the meantime, accepted the revised figures of capacity for the purpose of this Report.

**7.2. The annual rated capacity on single shift basis of Goetze (India) Ltd.,** for piston rings is stated to be 15 lakhs, and on double shift basis, 30 lakhs. We are also informed by the Development Wing that the annual capacity of this Company for the manufacture of pistons, as provisionally approved is 1.5 lakhs on single shift basis and 3 lakhs on double shift basis.

**7.3. Production.**—The production of India Pistons during the years 1955 and 1956 was as follows :—

	1955 Nos.	1956 Nos.
<b>PISTONS</b>		
<i>Cars &amp; Commercial vehicles</i>		
Aluminium . . . . .	92,384	108,360
Cast iron . . . . .	15,355	22,633
<i>Tractors &amp; Industrial engines</i>		
Aluminium . . . . .	14,113	25,768
Cast iron . . . . .	713	1,085

<i>Motor cycles</i>	1955 Nos.	1956 Nos.
Aluminium . . . . .	9,477	2,392
TOTAL PISTONS	132,042	160,238
PISTON RINGS . . . . .	1,917,762	2,080,528
GUDGEON PINS . . . . .	134,056	142,187

8.1. The basis that we have adopted now for estimating the annual domestic demand for pistons, piston rings and gudgeon pins, both for original equipment as well as for replacement, is the same as was followed at the time of the last inquiry. The number of automobiles in the country at the end of 1956 is estimated approximately at 384,000 of which passenger cars and jeeps account for 194,000 and commercial vehicles 190,000. Of the latter, about 100,000 are fitted with petrol engines and 90,000 with diesel engines. The number of motor cycles in the country at the end of 1956 is estimated at 45,000, while stationary engines are estimated at 230,000 and tractors at 35,000. On the basis of the above figures we have assessed the current replacement demand as follows :—

#### Replacement demand :

194,000	passenger cars (average number of cylinders 5 per car—replacement once in every 5 years)	194,000 pistons
100,000	commercial vehicles (petrol) (average number of cylinders 5 per vehicle—replacement once in every 2½ years)	200,000 pistons
90,000	commercial vehicles (diesel) (average number of cylinders 6 per vehicle—replacement once in every 4 years)	135,000 pistons
45,000	motor cycles and scooters (one cylinder per motor cycle or scooter—replacement once in every three years)	15,000 pistons
230,000	stationary engines (one cylinder per engine—replacement once in every 5 years)	46,000 pistons
35,000	tractors (average number of cylinders 4 per tractor—replacement once in every 5 years).	28,000 pistons
TOTAL .		618,000 pistons

*Demand for original equipment:*—On the basis of the production figures relating to 1956 we assess the current demand for original equipment as follows :—

17,000	passenger cars and jeeps (4 cylinders per car)	68,000 pistons
1,000	passenger cars (6 cylinders per car)	6,000 pistons
15,000	commercial vehicles (average 6 cylinders per vehicle)	90,000 pistons
10,000	motor cycles and scooters (one cylinder per unit)	10,000 pistons
12,000	stationary engines (one cylinder per engine)	12,000 pistons
TOTAL .		186,000 pistons

Taking the above two figures together the total demand for pistons at present aggregates 804,000. As one gudgeon pin is required for each piston the demand for gudgeon pins also aggregates 804,000. As regards piston rings, the number required for original equipment

is 4 for each piston and those required for replacement would be twice the number of pistons (as occasions for replacement would be twice as many as for pistons), the figures would be 5,688,000 piston rings.

8.2. The above figures do not include the requirements of the Defence Services.

8.3. As regards the future demand, it is expected that, on the basis of the present figures of automobiles consumption, it would increase at the rate of about 20 per cent each year during the next three years.

9. The principal raw materials used by India Pistons are as  
**Raw materials** under :

- (i) aluminium castings,
- (ii) gudgeon pin steel.
- (iii) ferro-chrome,
- (iv) ferro-phosphorous,
- (v) ferro-silicon, and
- (vi) pig iron.

The first four are imported and the other two obtained from indigenous sources. At present, the value of imported raw materials used by the Company constitutes 95 per cent of the total raw material cost in the case of pistons, nil in the case of rings and 100 per cent in the case of gudgeon pins. The Company expects to produce aluminium alloy piston castings in its own foundry by the end of 1957.

10.1. Complete satisfaction with the quality of pistons and rings manufactured by India Pistons Ltd., has been expressed by the Ministry of Defence, Government of India, Simpson & Co. Ltd., George Oakes (Private) Ltd., Parry & Co. Ltd., Jayems Beechey & Co. (Private) Ltd., and a few other consumers. India Pistons has stated in its memorandum that no complaints have been received regarding supplies made during the last six years to the Director-General of Supplies and Disposals. The Company has also informed us that Kirloskar Oil Engines Ltd., which has been supplied with pistons and rings for original equipment in Petter diesel engines since 1954 has been fully satisfied with the quality of the products. Simpson & Co. Ltd., has been using the pistons and rings as original equipments in Perkins engines and has expressed satisfaction. The Indian Commercial Co. Ltd., has stated that although initially, some of the piston castings were defective and there were errors in machining, subsequent deliveries have been satisfactory. The Director of Transportation, Government of West Bengal, has expressed satisfaction with indigenous pistons but is of opinion that control over inspection both in machining as well as in packing has been found to be somewhat defective. The Bombay State Road Transport Corporation has been purchasing pistons and rings from India Pistons for some time, and has found some of them to be defective. The defects were brought to the Company's notice, and the products replaced free of cost. The Bombay Electric Supply and Transport Undertaking and Ruston & Hornsby India (Private)

Ltd., have both informed us that rings purchased from Indian Pistons Ltd., are satisfactory and compare favourably with foreign products. Importers' opinions generally are to the effect that indigenous pistons do not compare favourably with imported products and there is considerable prejudice among consumers against them. The quality of indigenous piston rings, is, however, stated to be generally satisfactory.

10.2. The Andhra Pradesh Road Transport, the Bombay Motor Merchants' Association, and the Tractor and Allied Equipment Manufacturers' and Importers' Association Ltd., Bombay have expressed dissatisfaction with the quality of indigenous pistons and piston rings. Complaints have also been received from certain important consumers like the Bombay State Road Transport Corporation, the Bombay Electric Supply and Transport Undertaking, Rsuton and Hornsby India (Private) Ltd., and M/s. T. V. Sundram Iyengar and Sons Ltd., that there were inordinate delays on the part of India Pistons Ltd., in executing orders for certain types of pistons, some orders having been accepted several months ago but deliveries not affected against them.

10.3. As regards supplies for original equipment in automobiles manufactured in the country the position appears to be follows :

Hindustan Motors Ltd., has been obtaining its requirements of rings from India Pistons and fairly large quantities of pistons also, especially for Studebaker engines. It was mentioned at the public inquiry by the representative of India Pistons Ltd., that no complaints have been received by it from Hindustan Motors during 1955-56. Ashok-Leyland Ltd., has informed us that indigenous piston assemblies have not been used by it so far but orders have been placed with India Pistons Ltd., some time ago and deliveries are expected to commence in the near future. Negotiations are afoot with Tata Locomotive & Engineering Co. Ltd., for the supply of piston assemblies for Tata-Mercedes Benz engines. As regards Premier Automobiles, representations were made to us by India Pistons that difficulty was being experienced first in the former's approval of production samples of piston rings and subsequently, after production samples of pistons had been approved, no agreement could be reached on the inspection procedure for bulk supplies. Standard Motor Products of India Ltd., has been taking deliveries of piston assemblies since September, 1954, but got into difficulties with India Pistons Ltd., during the latter part of 1956 in regard to gudgeon pin fit and tolerance on skirt dimensions. The representative of Standard Motor Products, who attended the public inquiry, stated that at one time its deliveries of cars were held up on account of the bottle-neck in regard to piston assemblies. Large numbers of units supplied had to be returned and some had to be re-processed. We were, however, assured at the inquiry both by the representative of Standard Motor Products and of India Pistons that their mutual difficulties were in the process of being resolved and an agreed inspection procedure had been drawn up, and that they expected continuity of supplies to be maintained in future without difficulty. It has been reported to us that Mahindra & Mahindra Ltd., has finalised negotiations with India Pistons for the manufacture and supply of piston assemblies for jeeps manufactured by it.

10.4. India Pistons has also forwarded to us data relating to its supplies to Enfield India Ltd., Madras, Kirloskar Oil Engines Ltd., Poona, Automobile Products of India Ltd., Bombay, Cooper Engineering Works, Ltd., Satara, Ruston & Hornsby (India) Ltd., Bombay and Voltas Ltd., Bombay from which we observe that although initial rejections took place in regard to certain quantities supplied to each of the companies, the product had either been replaced or taken back and the differences between the suppliers and the consumers had been satisfactorily resolved. According to India Pistons it has so far supplied over 130,000 pistons for original equipment and 260,000 pistons to the replacement trade, both of which, in the aggregate, approximate to 80,000 engines spread over the country, and that it has not so far received any major complaint of seizure from any quarter which is a satisfactory testimony to the quality of its products. The representative of the Company stated at the public inquiry that all complaints were investigated with the utmost expedition and that defective supplies had in no case been refused replacement. As regards rejected supplies which were considered unfit for rectification, and hence unfit for use, we were assured that they were invariably destroyed.

10.5. On the question of delayed deliveries explanations were offered by the representatives of India Pistons present at the public inquiry in regard to each individual case that was presented to us. In one or two cases the delays were due to faulty execution of orders in the initial stages of production and the resultant need for obtaining fresh supplies of raw materials from overseas to re-process the orders. In other cases, it would seem that delays were due to the complicated nature of manufacture and procurement of the specific type of raw material required. Complaints were also made by a number of dealers to the effect that India Pistons had been refusing to accept orders for items which had been included in its catalogue in the range of products manufactured by it, on the plea that it was unable to accept manufacture of small quantities involving short runs. This question had been discussed even at the time of the last inquiry. It was then stated and agreed that manufacture of less than 250 pieces of pistons of a type was uneconomical, and that while the Company was prepared to diversify its production, it still had to take note of the fact that orders involving short runs of its machinery resulted in blocking the production of items in continued demand. A suggestion was made this time that India Pistons should retain shelf stocks of items in frequent demand and meet customers' orders promptly. The representative of the Company, however, stated that no producer of pistons and rings could guarantee ready stocks of all the varieties of pistons included in his production programme in such numbers as to eliminate the need for requiring a delivery period. The alternative to obtaining supplies from indigenous sources being procurement through import, and as imports always involve a time lag of between 8 to 10 months from the date of application for licences, it would seem only fair that the indigenous producers should also be allowed a delivery period especially during a time when he was endeavouring to face diverse developmental problems.

10.6. After reviewing the various items of evidence received by us we are satisfied that the quality of the rings produced by India Pistons is satisfactory and the quality of the pistons and gudgeon pins has undergone considerable improvement since the last inquiry.

We are also satisfied that consistency in quality has been achieved by the Company in regard to quite a few types of piston assemblies supplied by it to large-scale users during the last three years, and that although difficulties have been and are being experienced in regard to certain supplies made during the last year or two, every effort is being made by the Company to resolve these difficulties and achieve consistency in quality. It would, however, be appropriate to mention here that the complaints of some consumers that there has been some laxity in the Company's inspection procedure (and this has, in some instances, been admitted by the Company) seem to be justified. We, therefore, recommend that the Company should make determined efforts to tighten its inspection procedure and to ensure that no complaints on this account are made by any class of consumer.

10.7. We also find it necessary to make the following recommendations:

10.7.1. India Pistons should endeavour to rationalise its production programme and concentrate efforts on the manufacture of all such types and sizes as are most in demand in the replacement market for all internal combustion engines, automotive as well as stationary. Although we recommended in our last Report that India Pistons should diversify its production so as to meet the requirements of domestic consumers to the widest possible extent, some measure of re-thinking on this subject has now been found necessary in the light of the difficulties experienced by the Company and consumers during the last two years. Diversity is only possible subject to the feasibility of economic production and cannot be undertaken to the extent that such diversity results in uneconomic use of productive capacity or resources. In this connection India Pistons has informed us that it has decided to give up the manufacture of cast iron pistons in order that it may arrange for a gradual and orderly switch over of manufacturing line to aluminium alloy pistons. By doing so the Company expects to step up its capacity for aluminium pistons in anticipation of increasing orders from manufacturers of automobiles for original equipment. A list of the cast iron pistons manufactured by India Pistons is given in Appendix III.

10.7.2. The indigenous manufacturers of automobiles, motor cycles and scooters, diesel engines (both automobile as well as stationary) and of other types of internal combustion engines should expedite their negotiations with India Pistons for obtaining their requirements of piston assemblies from the Company. We consider this to be a matter of considerable importance in view of the stringent foreign exchange situation facing us.

10.8. The position regarding the formulation of standards by the Indian Standards Institution has been explained in paragraph 5.2. We were assured at the public inquiry that the absence of standards has not so far handicapped the development of the industry. Piston assemblies for original equipment are developed in conformity with manufacturers' specifications, while those for replacement market are developed according to standards and specifications supplied by the foreign associates of India Pistons Ltd. Alternative specifications by manufacturers are also taken into account before samples are supplied. We still feel that the work of laying down stan-



dards should be expedited and, therefore, recommend that the Indian Standards Institution should endeavour to finalise the standard specifications for pistons, piston rings and gudgeon pins as early as possible.

11.1.1. *Import control policy.*—At the time of the Commission's last inquiry and thereafter upto July-December, 1956, the import control policy in respect of piston assemblies varied according to their uses, and licences were issued under various serial numbers of the Import Tarde Control Schedule as indicated below :—

For use on diesel engines . . . . .	Under Sl. No. 30 (f) (ii) of Part II of the I.T.C. Schedule.
For use on petrol/kerosene engines and out-brand motors.	Under Sl. No. 31(b) and (c) of Part II of the I.T.C. Schedule.
For use on road vehicular type diesel engines .	Under Sl. Nos. 293, 295 and 297 of Part IV of the I.T.C. Schedule.
For use on tractors . . . . .	Under Sl. No. 74(iii) of Part V of the I.T.C. Schedule.

From July-December, 1956 imports have been canalised for all types of internal combustion engines, other than aircraft, under list III of Appendix XXVI of the I.T.C. Schedule. The policy pursued during this half year was that, in the case of piston assembly, a quota of 100 per cent general and 100 per cent soft, of one-half of their best year's imports, was fixed for the established importers, but not more than 25 per cent of the face value of the quota licences could be utilised for import of piston assemblies of diameter 6" and below. Further, licences were not valid for import of piston rings except as a component part of complete piston assemblies. Actual users' applications from garages for import of complete piston assemblies of certain makes were also considered *ad hoc*. The quota was calculated on the basis of imports of complete piston assemblies and pistons. In regard to piston rings, the established importers' quota was the same as that for piston assemblies, i.e., 100 per cent general and 100 per cent soft, but not more than 10 per cent of the face value of the quota licences could be utilised for import of piston rings of diameter 6" and below. Piston rings were also allowed to be imported when they were imported with (a) original equipment either C.K.D. or assembled, and (b) fitted to pistons when imported as complete piston assemblies. Applications for additional licences for import of rings (other than cast iron rings) were considered *ad hoc* in consultation with the Development Wing. The above licensing policy was continued during January-June, 1957 also subject to the following modifications—

- (a) the provisions contained in the licensing policy for July-December, 1956 for the issue of additional *ad hoc* licences for import of rings were omitted from the licensing policy for January-June, 1957, and
- (b) during January-June, 1957 licences granted for import of piston assemblies will also be valid for the import of (i) piston assemblies of 36 m.m. diameter and below and (ii) piston assemblies for auto-attachments of all types provided the pistons are of 40 m.m. diameter and below.

11.1.2. The question of import control policy was the subject of extensive discussion at the public inquiry as both India Pistons Ltd., and importers made representations against each other's activities. On the one hand, India Pistons complained that while a quota of 100 per cent had been allowed in respect of piston assemblies, but not more than 25 per cent could be utilised for import of piston assemblies of the protected categories, and the apparent expectation of the licensing authorities was that importers would accordingly obtain supplies of products not indigenously manufactured, importers were, in fact, obtaining only the types which are fast moving to the exclusion of others which moved slowly. Instances were quoted of large and continued imports of pistons for motor cars like Austin A. 40, Ford Prefect, Morris-8, Morris-Oxford, etc., which were popular types and were also being manufactured by India Pistons. Stocks of these pistons assemblies were held by India Pistons in large numbers, and were not being sold as a result of continued imports. The Company, therefore, made a suggestion that a further cut in the quotas for the protected categories should be made, or, alternatively, some measure of restriction by categories should be undertaken. Its representatives suggested that imports of piston assemblies should be restricted to 15 per cent instead of 25 per cent as at present. Importers, on the other hand, contended that consumers would be starved of their requirements if further cuts or categorisation of types were made, and that, in fact a liberalisation of imports was called for. In this connection, the representative of the Tractor and Allied Equipment Manufacturers' and Importers' Association cited the case of piston assemblies for several types of agricultural tractors which were not manufactured by India Pistons Ltd., although they were of sizes within the protected category. This contention was also supported by the representative of Associated Exports Imports Corporation. Both of them mentioned that it was also found difficult to obtain import licences for the produce although certificates of "No Production" issued by India Pistons Ltd., were produced. We are averse to making any recommendation in regard to the operation of import control as it has to take note of several administrative difficulties. We have been provided by India Pistons with a list of the types of pistons now manufactured by them but we do not have the means to check and satisfy ourselves that the Company is fully provided with all the facilities for such manufacture. Also, the publication of this list in our Report would result in difficulties both for the Company and for importers. We have, however, obtained from the Company the undermentioned list of 14 engines relating to which it holds sufficient stocks of rough castings and finished pistons ready for supply, but which do not move as a result of competing supplies of imported products. Government may make use of this list for such purposes as they consider proper in the formulation of their future import policy.

Model	Bore	Reference No.
Ferguson Tractor . . . . .	85 m.m.	11039
Perkins . . . . .	3.501"	11029
Petter Series II . . . . .	80 m.m.	11011
Royal Enfield . . . . .	2.751"	10030
Austin . . . . .	2.235"	10071

Model	Bore	Reference No.
Austin A 40 . . . . .	2.5775"	10012
Austin 10 . . . . .	2½"	10011
Dodge . . . . .	3.7/16"	11003
Ford Prefect . . . . .	2½"	10070
Ford Mercury . . . . .	3.3/16"	11057
Ferguson Tractor . . . . .	85 m.m.	11025
Morris 8 . . . . .	57 m.m.	10018
Willys Jeep . . . . .	3.1/8"	11008
Morris Oxford . . . . .	73.5 m.m.	10020

As mentioned in paragraph 10.7.1 above India Pistons also informed us that it is progressively concentrating on the manufacture of aluminium pistons and cutting out cast iron pistons from its programme.

11.2. Imports.—A statement showing countrywise imports of trunk piston assemblies of diameter 6" and below and their components during 1956 is given in Appendix IV. The total imports of these articles during that year were :—

	Quantity Nos.	Value Rs.
1. Trunk piston assemblies of diameter 6" and below . . . . .	93,923	13,75,260
2. Trunk pistons of diameter 6" and below . . . . .	71,385	12,81,240
3. Trunk piston rings (excluding chromium plated rings) of diameter 6" and below. . . . .	190,284	7,41,053
4. Gudgeon pins for trunk pistons of diameter 6" and below. . . . .	20,406	59,904

The bulk of the imports came from U.K.

12. Protected categories of piston assemblies and component parts thereof are assessed to duty under Item No. 75(12A) of the Existing rates of duty First Schedule to the Indian Tariff Act, 1934. The relevant extract is reproduced below :—

Item No.	Name of article	Nature of duty	Standard rate of duty	Preferential rate of duty if the article is the produce or manufacture of the United Kingdom	Duration of protective rates of duty
75(12A)	The following articles adapted for use as parts and accessories of internal combustion engines of all kinds but excluding such articles as are adapted for use exclusively as parts and accessories of internal combustion engines of agricultural tractors and aeroplanes, viz.—  Trunk piston assembly of diameter 6" and below; trunk pistons of diameter 6" and below; trunk piston rings (excluding chromium plated rings) of diameter 6" and below and gudgeon pins for trunk pistons of diameter 6" and below.	Protective	50 per cent <i>ad valorem</i>	*42½ per cent <i>ad valorem</i>	December 31st, 1957.

\*Provided that the said articles are adapted for use exclusively as parts and accessories of motor vehicles other than motor cars including taxi cabs.

13.1 The information obtained by us from the Collectors of Customs and some of the leading importers regarding c.i.f. prices, customs duty, clearing charges and landed costs of types and specifications of imported piston assemblies (piston, piston rings and gudgeon pins), piston rings and gudgeon pins corresponding to those of the indigenous products which were selected for determining the fair ex-works prices is given in Appendix V. After discussion at the public inquiry and taking into account all relevant factors such as comparability and sources of imports most acceptable to consumers the following c.i.f. prices were selected by us for purposes of comparison with the fair ex-works prices of the indigenous products.

Type and Specification	C.i.f. prices adopted (In Rs.)		
	For a piston assembly	For a set of piston rings required for an engine	For a gudgeon pin
Ford V-8—3 1/16" bore . . . . .	8.12 (U.K.)	20.00 (U.K.)	1.50 (U.K.)
Chevrolet—3 1/2" bore . . . . .	*10.50 (U.S.A.)	12.00 (U.K.)	1.00 (U.K.)
Standard Vanguard—85 mm bore . . . . .	9.50 (U.K.)	9.00 (U.K.)	2.00 (U.K.)
Royal Enfield—2.751" bore . . . . .	11.00 (U.K.)	3.30 (U.K.)	1.39 (U.K.)
Perkins P-6—3.501" bore . . . . .	14.66 (U.K.)	22.22 (U.K.)	2.00 (U.K.)
Ruston and Hornsby—VSH Diesel—4 1/2" bore . . . . .	41.12 (U.K.)	5.25 (U.K.)	..
Petters A.V.-1—80 mm bore . . . . .	16.27 (U.K.)	3.47 (U.K.)	3.44 (U.K.)

\*For a piston assembly without rings.

13.2. It will, however, be observed that in the case of certain imports from West German sources, the c.i.f. prices are much lower than those mentioned above as, for instance, in the case of:—

Piston Assemblies	C.i.f. price Rs.
Ford V-8 (3 1/16") . . . . .	8.00
Chevrolet (3 1/2" bore) . . . . .	8.83
Perkins P-6 (3.501" bore) . . . . .	13.33
Piston Ring set	
Standard Vanguard (85 mm bore) . . . . .	8.00

The above products do offer competition to indigenous makes and enjoy a measure of consumers' preference, next to U.K. products. We have taken due note of this when considering the quantum of protection required by the industry.

**14. Costs of production and fair ex-works prices of piston assemblies, piston rings and gudgeon pins**

14.1. Our Cost Accounts Officer has examined the costs of production of piston assemblies, piston rings and gudgeon pins of certain selected types manufactured by India Pistons Ltd., which broadly represent the popular categories required for use in automobiles and stationary engines in the country. The actual investigation was for the year ended 30th September, 1956. The Cost Accounts Officer has reported that the Company has in force a good system of departmental costing combined with job costing, and that it was possible to assess the fair costs of production of the various components from the records that were maintained by it. The Cost Accounts Officer's report is being forwarded to Government as a confidential enclosure to this Report.

14.2. The fair ex-works prices of the various products for the future have been estimated from the data furnished in the cost report after taking account of the following factors;

*Production.*—We have assumed that 2 lakhs of pistons, 20 lakhs of rings, 2 lakhs of gudgeon pins and 2 lakhs of Duaflex rings will be produced in the future; these would represent about 30 per cent increase over the Company's actual production in 1955-56.

*Raw materials.*—The average prices of aluminium castings and steel rods in the past have been assumed as basis for future estimates. It is, however, likely that the costs of indigenous production of castings in the Company's foundry will be higher than those of the castings now imported by it when production is started in a few months from now, but provision for this contingency at this stage is not feasible.

*Depreciation* has been allowed at income-tax rates in accordance with the usual practice.

*Interest on working capital* has been allowed at 5½ per cent on an amount equivalent to seven months' cost of production.

*Return on block* has been allowed at 10 per cent on the original value as on 30th September, 1956 which aggregated to Rs. 41,60,670.

*Engineering fees* have been calculated in accordance with the terms of the agreement between the Company and its foreign associates.

14.3. In Appendix VI we give particulars of the estimated future ex-works prices of pistons (complete), piston rings and gudgeon

pins for the selected types. A summary of the prices is given below :

	Bore	Cost of ring sets per engine		Cost per gudgeon pin	Cost per piston assembly complete with pin and rings
		No. of rings	Cost		
		Nos.	Rs.	Rs.	Rs.
1. Ford . . . . .	3 1/16"	C 16 } O 8 }	10.96	1.43	10.68
2. Chevrolet . . . . .	3 1/2"	C 12 } O 6 }	9.12	1.70	*15.43
3. Standard Vanguard . . . . .	85 mm	C 8 } O 8 }	7.36	1.51	12.79
4. Royal Enfield . . . . .	2.751"	C 2 } O 1 }	†2.35	1.50	†11.26
5. Perkins P-6 . . . . .	3.501"	C 18 } O 12 }	15.48	3.41	17.94
6. Ruston and Hornsby . . . . .	4 1/2"	C 3 } O 3 }	5.45	Imported	37.14
7. Petters A.V.-1 . . . . .	80 mm	C 3 } O 1 }	2.17	2.93	16.19

\*Chevrolet Piston assembly without rings cost Rs. 14.1.

†Includes cost of one chromium plated compression ring viz., Rs. 1.43 which is an imported item.

N.B. —C—Compression rings.

O—Oil rings

15.1. We give below three statements comparing the fair ex-works prices of indigenous piston assemblies, piston rings and gudgeon pins with the c.i.f. prices and landed costs (ex-duty) of the imported products, the c.i.f. prices being those indicated in paragraph 13 above.

#### STATEMENT I

##### Piston Assembly

	Ford 3 1/16"	Chevro- let 3 1/2" (without guard rings)	Stan- dard Van- 85 m.m.	Roya. Enfield 2.751"	Perkins -6 3.501"	Ruston & Hornsby (VHS) 4 1/2"	Petters AV-1 80 m.m.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1. C.i.f. price . . . . .	8.12	10.50	9.50	11.00	14.66	41.12	16.27
2. Clearing charges . . . . .	0.25	0.25	0.37	0.2	0.29	0.75	0.41
3. Landed cost (ex-duty) . . . . .	8.37	10.75	9.87	11.25	14.95	41.87	16.68
4. Fair ex-works price . . . . .	10.68	14.01	12.79	11.26	17.94	37.14	16.19
5. Difference (4—3) . . . . .	2.31	3.26	2.92	0.01	2.99	—4.73	—0.49
6. Difference (5) as % of (1) . . . . .	28.4%	31.0%	30.7%	0.1%	20.4%	—11.5%	—3.0%

## STATEMENT II

*Piston Ring Set*

	Ford 3 1/16"	Chevro- let 3 1/4"	Stan- dard Vanguard 85 m.m.	Royal Enfield 2.751"	Perkins P-6 3.501"	Ruston & Hornsby (VSH) 4 1/2"	Petters AV-1 80 m. m.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1. C.i.f. price . . . . .	20.00	12.00	9.00	3.30	22.22	5.25	3.47.
2. Clearing charges . . . . .	0.25	0.25	0.12	0.07	0.30	0.08	0.09
3. Landed cost (ex-duty) . . . . .	20.25	12.25	9.12	3.37	22.52	5.33	3.56
4. Fair ex-works price . . . . .	11.36	9.12	7.36	2.35	15.48	5.45	2.17
5. Difference (4—3) . . . . .	—8.89	—3.13	—1.76	—1.02	—7.04	0.12	—1.39
6. Difference (5) as % of (1) . . . . .	—46.5%	—26.1%	—19.6%	—30.9%	—31.7%	2.3%	—40.1%

## STATEMENT III

*Gudgeon pins*

	Ford 3 1/16"	Chevro- let 3 1/4"	Stan- dard Van- guard 85 m.m.	Royal Enfield 2.751"	Perkins P-6 3.501"	Ruston & Hornsby (VSH) 4 1/2"	Petters AV-1 80 m.m.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1. C.i.f. prices . . . . .	1.50	1.00	2.00	1.39	2.00	2.00	3.44
2. Clearing charges . . . . .	0.01	0.01	0.01	0.03	0.01	0.01	0.07
3. Landed cost (ex-duty) . . . . .	1.51	1.01	2.01	1.42	2.01	2.01	3.51
4. Fair ex-works price . . . . .	1.43	1.70	1.51	1.50	3.41	Not manu- factured	2.93
5. Difference (4—3) . . . . .	—0.08	0.69	—0.50	0.08	1.40	..	—0.58
6. Difference (5) as % of (1) . . . . .	—5.3%	69.0%	—25.0%	5.8%	70.0%	..	—16.9%

It will be seen from the above statements that (a) indigenous piston assemblies suffer from disadvantages in five out of seven of the types selected for costing, the disadvantage being about 31 per cent in two cases (b) indigenous rings suffer from a small disadvantage only in one case and (c) indigenous gudgeon pins suffer from disadvantages in three cases, in two of which the percentages are as high as 69 and 70.

15.2. In this connection it should be noted that while the c.i.f. prices adopted in the above comparisons relate to U.K. products (except in one case) which form the bulk of imports, we cannot ignore altogether the c.i.f. prices of certain West German imports,

which, although of lesser magnitude, do offer competition to indigenous products by reason of their cheapness. Taking into consideration the cases of Ford V-8, Chevrolet, and Perkins P-6 piston assemblies, the West German c.i.f. prices of these products indicated by us in paragraph 13·2 place the corresponding indigenous products at disadvantages of 30·4 per cent 72·9 per cent and 32·4 per cent respectively.

16. It will be observed from the data given in the previous paragraph that the disadvantage suffered by India Pistons Ltd., in the manufacture of piston assemblies averages to about 30 per cent in many cases, and is much higher in one case. The position in this regard is thus worse than what was disclosed at the last investigation. Our cost investigation covered only a few of the representative types, but there are several others in which it is conceivable that similar and greater disadvantages are suffered by the Company. In a few months from now the Company proposes to undertake the manufacture of aluminium castings in its own foundry, and the costs of such castings are likely to be higher in the initial stages than the landed costs of imported castings which they now obtain. The prejudice against indigenous products is still in evidence and the Company has relied to a great extent on the operation of import control for marketing its products. Negotiations are still taking place with one or two indigenous manufacturers of automobiles who have not yet accepted the piston assemblies of Indian manufacture for fitment into their vehicles as original equipment. In view of all these factors we are of opinion that the present rates of duty of 42½ per cent *ad valorem* preferential and 50 per cent *ad valorem* standard on trunk piston assemblies of diameter 6" and below, trunk pistons of diameter 6" and below, trunk piston rings (excluding chromium plated rings) of diameter 6" and below and gudgeon pins for trunk pistons of diameter 6" and below should be continued. We accordingly recommend that protection to the industry should be continued for a further period of three years that is, until 31st December, 1960 at the existing rates of duty as mentioned above.

17. Our conclusions and recommendations are summarised as **Summary Conclusions and Recommendations** under :

- (i) The present annual domestic demand, exclusive of the requirements of the Defence Services, aggregates 804,000 pistons, 5,688,000 piston rings and 804,00 gudgeon pins. The annual demand is likely to increase at rate of about 20 per cent each year during the next three years.

[Paragraphs 8.1., 8.2. and 8.3.]

- (ii) The quality of the rings produced by India Pistons is satisfactory and the quality of the pistons and gudgeon pins has undergone considerable improvement since the last inquiry.

[Paragraph 10.6]

- (iii) India Pistons Ltd., should make determined efforts to tighten its inspection procedure and to ensure that no complaints on this account are made by any class of consumer.

[Paragraph 10.6]



- (iv) India Pistons Ltd., should endeavour to rationalise its production programme and concentrate efforts on the manufacture of all such types and sizes as are most in demand in the replacement market for all internal combustion engines, automotive as well as stationary.

[Paragraph 10.7.1]

- (v) The indigenous manufacturers of automobiles, motor cycles and scooters, diesel engines (both automotive and stationary) and of other types of internal combustion engines should expedite their negotiations with India Pistons for obtaining their requirements of piston assemblies from the Company.

[Paragraph 10.7.2]

- (vi) The Indian Standards Institution should endeavour to finalise standard specifications for pistons, piston rings and gudgeon pins as early as possible.

[Paragraph 10.8]

- (vii) Protection to the industry should be continued till 31st December, 1960 at the existing rates of duty.

[Paragraph 16]

18. We wish to express our thanks to the producers, importers and consumers and the various Associations concerned who furnished us with valuable information in connection with this inquiry.

**Acknowledgments**

C. RAMASUBBAN,  
*Member.*

S. K. MURANJAN,  
*Member.*

J. N. DUTTA,  
*Member*

RAMA VARMA,  
*Secretary.*

*Bombay, 20th May, 1957.*

## APPENDIX I

[Vide paragraph 3.1]

*List of firms/bodies/Government Departments to whom the Commission's questionnaires were issued and from whom replies or memoranda were received*

\*Indicates those who have replied in detail.

†Indicates those who are not interested.

### A. PRODUCERS:

- \*1. India Pistons (Private) Ltd., Huzur Gardens, Sembiam, Madras-11.
- \*2. Goetze (India) Private Ltd., Pratap Building, Connaught Circus, New Delhi.
- \*3. Precision Metal Works, Hubli Road, Dharwar.
- \*4. Hindustan Motors, 8, India Exchange Place, Calcutta.

### B. IMPORTERS:

1. Anand Motors, Gandhi Motor Market, Kashmere Gate, Delhi.
- \*2. Ashok Leyland Ltd., Bank of Mysore Buildings, N.S.C. Bosc Road, Madras-1.
3. Ashok Engineering Co., Parsi Bazar Street, Bombay.
4. Asian Mercantile Agencies, 42, Subhas Nagar, Karol Bagh, New Delhi.
5. Asian Trading Corporation, Sir P. M. Road, Bombay-1.
- †6. Associated Auto Parts Ltd., 445, Lamington Road, Bombay-4.
7. Associated Exports Imports Corporation, 8B, Lall Bazar Street, Calcutta-1.
8. Automotive Agencies (Private) Ltd., 14, Bentinck Street, Calcutta.
9. Automobile Products of India Ltd., Allahabad Bank Building, Apollo Street, Bombay-1.
- †10. Bahri & Co., P-39, Mission Row Extension, Calcutta-13.
- \*11. Balmer Lawrie & Co. Ltd., 21, Netaji Subhas Road, P. O. Box No. 4, Calcutta-1.
12. Bharat Trading Co., 13/90, Connaught Circus, New Delhi.
13. Bombay Motor Trading Co., Cutch Castle, Bombay-4.
14. Central Motor Parts & Accessories Co. Private Ltd., 20, Mangoe Lane, Calcutta.
15. Chimanlal Desai & Co., 54, Bentinck Street, Calcutta.
16. Dee Deepak & Co., 22, Municipal Market, Connaught Circus, New Delhi.
17. Dewar's Garage and Engineering Works, 4, Council House Street, Calcutta.
18. Dhawan Bros. & Co., Latouche Road, Kanpur.
19. Eastern Auto Parts Co. (Calcutta) Private Ltd., 55, Bentinck Street, Calcutta.
20. Eruchi D. Engineer & Co., Apollo Street, Bombay-1.
21. E. S. Shivaji & Co., Post Box No. 3, 178/179, Broadway, Madras.
22. Ever Green Automobiles, 2641, Hamilton Road, Kashmere Gate, Delhi.
23. Farm Equipment Co., Star Press Building, The Mall, Kanpur.
24. Federal Auto Stores, Kashmere Gate, Delhi.
25. Foreign Products Dist. Co., 491, Sandhurst Road, Bombay-4.
26. French Motor Car Co. Ltd., Hughes Road, Bombay-26.
27. General Marketing Co., 984, Hamilton Road, Kashmere Gate, Delhi.
- \*28. George Oakes Ltd., P. O. Box 499, Bombay-1.
- \*29. Girdharilal & Co., Sandhurst Bridge, 403, Sukh Sagar (4th Floor), Bombay-7.
30. G. P. Trading Corporation, 3216, Hanuman Lane, New Delhi.
- \*31. Great Eastern Shipping Co. Ltd., 14, Jamshedji Tata Road, Churchgate Reclamation Bombay-1.
- \*32. Greaves Cotton & Co. Ltd., 1, Forbes Street, Post Box No. 91, Bombay-1.
33. H. F. Higgins Eastern Private Ltd., Janmabhoomi Chambers, Fort, Bombay.
34. Himalaya Auto Stores, Kashmere Gate, Delhi.

35. Hindustan Automobiles, 509, Sandhurst Road, Bombay-4.
36. Hindustan Industrial Agencies, Sir P. M. Road, Bombay-1.
37. Howrah Motor Accessories Agency, Private Ltd., 3/1, Mangoe Lane, Calcutta.
- \*38. India Motor Parts and Accessories Private Ltd., 1/155, Mount Road, Madras 2.
39. India Traders, B. I. 238, Abid Road, Hyderabad (Deccan).
- †40. Ingersoll Rand (India) Private Ltd., 17-B, Horniman Circle, Bombay-1.
41. Isral Automobiles, 26, Central Avenue, Calcutta.
42. Jagkumar & Co., Hornby Road, Bombay-1.
- \*43. Jessop & Co. Ltd., 63, Netaji Subhas Road, Calcutta.
- \*44. J. N. Marshall & Co., Savoy Chambers, 5, Wallace Street, Fort, Bombay.
45. Jullundur Motor Agency (Delhi), Kashmere Gate, Delhi.
46. Kaytee Trading Corporation, 32/6, Hanuman Lane, New Delhi.
- \*47. K. B. Thaker & Co., P. O. Box No. 1136, Commerce House, 140, Meadows Street, Bombay-1.
48. Lakshmi Chandra Tilak Raj, C/o National Transport Co., Jammu.
49. Lakshmi Motor Co., Queen's Road, Delhi-6.
50. Larsen & Toubro Ltd., I.C.I. House, Dougall Road, Ballard Estate, Bombay.
51. Madhoran Moolchand, 80/82, Nagdevi Street, Bombay-3.
- \*52. Madras Auto Service Ltd., 37, Mount Road, Madras-6.
- \*53. Mahindra & Mahindra Ltd., Gateway Building, Apollo Bunder, Bombay-1.
- \*54. Martin Burn Ltd., 12, Mission Row, Calcutta-1.
55. Melita Motor Stores, Sandhurst Road, Bombay-4.
56. M/s. India Automobiles, 2710, Lothian Road, Kashmere Gate, Delhi.
57. M/s. Tractor & Equipment Corporation Ltd., Post Box No. 79, New Delhi.
- †58. New Eastern India Private Ltd., Sir P. M. Road, Bombay-1.
59. New Indo Trading Co., Sandhurst Road, Bombay-4.
- \*60. Orient General Agencies, Hamilton Road, Kashmere Gate, Delhi.
61. Overseas Importers, 115, New Citizen Bank House, Palton Road, Bombay-1.
62. Pal Motor Stores, 8, Mangoe Lane, Calcutta.
- \*63. Parry & Co. Ltd., Post Box No. 12, Madras-1.
- \*64. Pashabhai Patel & Co., Construction House, Ballard Estate, Bombay.
- \*65. P. Rai & Co., 105, Appollo Street, Fort, Bombay.
- \*66. Premier Automobiles Ltd., Agra Road, Kurla, Bombay.
- \*67. Rane (Madras) Ltd., 5, Patullos Road, Mount Road, Madras-2.
68. Saiga & Co., Apollo Street, Bombay-1.
69. Shantilal C. Mehta, Apollo Street, Bombay-1.
- †70. Shree Changdeo Sugar Mills Ltd., 14, Jamshedji Tata Road, Churchgate Reclamation, Bombay.
- \*71. Simpson & Co. Ltd., 202/203, Mount Road, Madras-2.
72. Siyaram Brothers, Kashmere Gate, Delhi-6.
- †73. S. Ray & Co., Post Box No. 693, 3/1, Mangoe Lane, Calcutta.
- \*74. Standard Motor Products of India Ltd., 29, Mount Road, Madras-2.
75. Sundaram Motors Ltd., Post Box No. 713, Mount Road, Madras-6.
76. Swastika Motors, Hamilton Road, Kashmere Gate, Delhi.
77. The Auto & Radio Equipment Co., V. Patel Road, Bombay.
78. The General Trading Co., 9/1, Waterloo Street, Calcutta-1.
79. The Hindustan Electric Co., Ltd., Graham Road, Bombay-1.
80. The Howrah Motor Co. Private Ltd., P-6, Mission Row Extension, Calcutta.
- \*81. The Modern Automobiles, 4/17-A, Mount Road, Madras-2.
- †82. Tractors (India) Ltd., P. O. Box No. 323, 1, Taratolla Road, Calcutta-24.
- †83. Turner Hoare & Co. Private Ltd., Apollo Bunder, Bombay-1.

- \*84. T. V. Sundram Iyengar & Sons Private Ltd., T.V.S. Building, West Veli Street, Madurai.
- 85. United Engineers, Apollo Street, Bombay-1.
- 86. United Trading Co., Post Box No. 1075, Kashmere Gate, Delhi-6.
- \*87. Voltas Ltd., Graham Road, Ballard Estate, Bombay.
- 88. Vulcan Trading Co. (Private) Ltd., Nicol Road, Ballard Estate, Bombay.
- 89. Watir Singh & Sons, 10, Faiz Bazar, Delhi.
- 90. W. H. Brady & Co. Ltd., Brady House, 12/14, Veer Nariman Road, Post Box No. 26, Bombay-1.
- †91. William Jacks & Co. Ltd., Hamilton House, Ballard Estate, Bombay-1.

#### C. CONSUMERS:

##### *Diesel Engine Manufacturers*

- \*1. M/s. Cooper Engg. Ltd., Satara Road, S. Satara.
- \*2. M/s. Kulko Engg. Works Ltd., Ichalkaranji, Dist. Kolhapur.
- 3. M/s. Mackinnon Mackenzie & Co. Ltd., Post Box No. 122, Bombay.
- †4. M/s. Pakco Engg. Ltd., Laxmipuri, Post Box No. 14, Kolhapur.
- 5. M/s. Machines & Spares (I) Ltd., Fountain View, 24, Darya Ganj, Delhi-7.
- 6. M/s. Dandyuthapani Fdy. Ltd., Pappanaikenpalayam, Coimbatore.
- †7. M/s. Textool Co. Ltd., Post Box No. 221, Coimbatore.
- †8. M/s. Oriental Engg. Works Ltd., Industrial Area, Yamuna Nagar (Shri Jagadhri), Dist. Ambala.
- 9. M/s. Modern Engg. & Moulding Co., Shahpur Mills Compound, Ahmedabad.
- 10. M/s. Patel Mavji Kanji & Bros., Jail Gate Road, Rajkot.
- 11. M/s. Lakshmiratan Engg. Works Ltd., Industrial Area No. 1, Faridabad (Delhi).
- \*12. M/s. Tata Locomotives & Engg. Co. Ltd., Bombay House, 24, Bruce Street, Fort, Bombay.

##### *State Transport services*

- \*13. Bombay State Road Transport Corporation, Ghodbunder Road, Santacruz, Bombay-23.
- \*14. Andhra Pradesh Road Transport, Mushirabad, Hyderabad (Deccan).
- 15. Manipur State Transport, Imphal.
- \*16. Directorate of Transportation, Government of West Bengal, 5, Nilgunge Road, Belghoria, 24-Parganas, W. Bengal.
- 17. Delhi Road Transport Authority, Scindia House, New Delhi.
- †18. Amritsar Omnibus Service, Amritsar.
- 19. The State Transport Department, Transport House, Madras-2.

##### *Railways*

- \*20. General Manager, Southern Railway, Perambur, Madras-23.
- \*21. Controller of Stores, Western Railway, Churchgate, Bombay.
- †22. Controller of Stores, Central Railway, Bombay.
- †23. Controller of Stores, North Eastern Railway, Coochbehar.
- 24. General Manager, Eastern Railway, Calcutta.
- 25. General Manager, Northern Railway, New Delhi.
- 26. General Manager, South Eastern Railway, Calcutta.

##### *Electricity Undertakings*

- †27. Surat Electricity Co. Ltd., Post Box No. 20, Tilak Maidan, Surat.
- †28. The Bombay Electric Supply and Transport Undertaking, Transport House, Bombay-1.

*Municipal Corporation*

29. The Commissioner, Bombay Municipal Corporation, Bombay.

*Port Trusts*

- †30. The Secretary, Bombay Port Trust, Ballard Road, Fort, Bombay.  
 †31. The Commissioners for the Port Trust of Calcutta, 15, Strand Road, Calcutta.

*Other Consumers*

32. Acme Manufacturing Co. Ltd., Antop Hill, Wadala, Bombay.  
 \*33. Ashok Leyland Ltd., Bank of Mysore Buildings, N.S.C. Bose Road, Madras-1.  
 \*34. Automobile Products of India Ltd., Agra Road, Bhandup, Bombay-40.  
 35. Dewar's Garage and Engineering Works, 4, Council House Street, Calcutta.  
 36. George Oakes Ltd., P. O. Box No. 499, Bombay-1.  
 \*37. Hind Motor Corporation, 24-B, Hamam Street, Raja Bahadur Compound, Bombay.  
 †38. India General Navigation & Rly. Co. Ltd., Fairlie House, Calcutta.  
 \*39. Indian National Diesel Engine Co. Ltd., Hall and Andersen Building (1st Floor), Park Street, Calcutta-16.  
 \*40. Jayems Beechey & Co. Private Ltd., Warden House, Sir P. M. Road, Bombay.  
 41. Khushalani Russel New Berry & Co. Ltd., Warden House, Sir P. M. Road, Bombay.  
 42. Kirloskar Oil Engines Ltd., Elphinstone Road, Kirkee, Poona-3.  
 43. Mahindra and Mahindra Ltd., Gateway Building, Apollo Bunder, Bombay.  
 †44. Martin Burn Ltd., 12, Mission Row, Calcutta-1.  
 45. Mazagon Dock Ltd. (C/o Mackinnon Mackenzie & Co. Ltd., M/G. Agents), Ballard Estate, Bombay.  
 46. M/s. Conwest (Private) Ltd., 448, Lamington Road, Bombay-4.  
 47. M/s. Howrah Motor Co. (Private) Ltd., P-6, Mission Row Extension, Calcutta-1.  
 48. M/s. Madras Auto Service Ltd., 37, Mount Road, Madras-6.  
 \*49. M/s. Standard Motor Products of India Ltd., 29, Mount Road, Madras-2.  
 50. M/s. Tractor & Equipment Corporation Ltd., Post Box No. 279, New Delhi.  
 51. M/s. W. H. Brady & Co., 'Brady House', 12-14, Veer Nariman Road, Bombay-1.  
 52. Octavius Steel and Co., Post Box No. 38, Calcutta.  
 †53. Port Engineering Works Ltd., 8, Clive Row, Calcutta-1.  
 \*54. Ruston & Hornsby (India) Ltd., 1, Forbes Street, Bombay-1.  
 †55. Scindia Steam Navigation Co. Ltd., Scindia House, Ballard Estate, Bombay.  
 \*56. Simpson & Co. Ltd., 202/203, Mount Road, Madras-2.  
 \*57. Southern Roadways Ltd., T. V. S. Building, West Veli Street, Madurai.  
 58. The Enfield India Ltd., 36-C, Mount Road, Madras-2.  
 \*59. The Indian Commercial Co. Ltd., 45-47, Apollo Street, Fort, Bombay-1.  
 \*60. The Premier Automobiles Ltd., Agra Road, Kurla, Bombay-37.

**D. ASSOCIATIONS:**

1. Motor Vehicles & Allied Merchants' Association, 1/155, Mount Road, Madras-2.  
 2. Automobile Ancillary Industries Association, Victoria Mills Estate, Gamdevi, Bombay-7.  
 3. Bombay Motor Merchants' Association, Sukh Sagar (3rd Floor), Sandhurst Bridge, Bombay-7.  
 †4. Motor Manufacturers' & Importers' Association, Bank of Baroda Building, Apollo Street, Bombay.  
 5. The Society of Motor Manufacturers and Traders Ltd., P. O. Box No. 173, New Delhi.  
 \*6. Tractor & Allied Equipment Manufacturers' and Importers' Association Ltd., C/o The Bombay Chamber of Commerce, Mackinnon Mackenzie Building, Bombay-1.  
 \*7. Indian Road & Transport Development Association Ltd., 27, Bastion Road, Bombay-1.  
 \*8. Calcutta Motor Dealers' Association, P-6 Mission Row Extension, Calcutta-1.

**E. RAW MATERIAL MANUFACTURERS:**

The Aluminium Manufacturing Co. Private Ltd., 2, Jessore Road, Dum Dum, Calcutta 28.

**F. STATE GOVERNMENTS:**

- \*1. The Chief Secretary to the Government of Madras, Madras.
- 2. The Chief Secretary to the Government of Punjab, Chandigarh.

**G. COLLECTORS OF CUSTOMS:**

- \*1. The Collector of Customs, Bombay.
- \*2. The Collector of Customs, Calcutta.
- \*3. The Collector of Customs, Madras.
- \*4. The Collector of Customs, Cochin.

**H. CENTRAL GOVERNMENT DEPARTMENTS AND OTHER PARTIES:**

- 1. The Director General of Supplies & Disposals, Government of India, Shahjahan Road, New Delhi.
- \*2. The Director General of Commercial Intelligence & Statistics, 1, Council House Street, Calcutta.
- \*3. The Chief Industrial Adviser, Ministry of Heavy Industries, Development Wing, Shahjahan Road, New Delhi.
- \*4. The Indian Standards Institution, 19, University Road, Civil Lines, Delhi-8.
- 5. The Indian Institute of Science, Bangalore.
- \*6. The Council of Scientific & Industrial Research, Old Mill Road, New Delhi.
- 7. The Secretary to the Government of India, Ministry of Transport, New Delhi.
- \*8. The Secretary to the Government of India, Ministry of Defence, New Delhi.
- \*9. The Secretary to the Government of India, Ministry of Food and Agriculture, New Delhi.
- \*10. The Secretary to the Government of India, Ministry of Irrigation and Power, New Delhi.
- \*11. The Development Commissioner, Small Scale Industries, 135, Sunder Nagar, New Delhi.

## APPENDIX II

[Vide paragraph 3-4]

*List of persons who attended the Commission's public inquiry on 23rd April, 1957*

### Producers:

- |                    |   |  |
|--------------------|---|--|
| 1. Mr. V. A. Watts | } | Representing India Pistons (Private) Ltd., |
| 2. Shri M. K. Raju | . | Huzur Gardens, Sembiam, Madras.            |
| 3. „ W. N. Kamath  | } |  |
| 4. „ M. K. Swami   | . | Representing Goetze (India) Private Ltd.,  |
|                    | . | Pratap Buildings, Connaught Circus,        |
|                    | . | P. O. Box No. 187, New Delhi.              |

### Importers:

- |                          |   |  |
|--------------------------|---|--|
| 1. Shri K. N. Ramanathan | . | Representing Standard Motor Products of India Ltd., 29, Mount Road, Madras-2.  |
| 2. „ A. B. Parakh        | . | Representing Tata Locomotive & Engineering Co. Ltd., Bombay House, 24, Bruce Street, Fort, Bombay.   |
| 3. „ Shri K. M. Thaker   | . | Representing K. B. Thaker & Co., P. O. Box No. 1136, Commerce House, 140, Meadows Street, Bombay-1.  |
| 4. „ Indrakant Patel     | . | Representing Pashabhai Patel & Co., Ltd., Construction House, Ballard Estate, Bombay.  |
| 5. „ T. V. S. Mani       | . | Representing Mahindra & Mahindra Ltd., Gateway Bldgs., Apollo Bunder, Fort, Bombay.  |
| 6. Mr. W. Barreto        | } | Representing Larsen & Tourbo Ltd., I.C.I. House, Dougall Road, Ballard Estate, Bombay, Tractor & Equipment Corporation Ltd., Post Box No. 79, New Delhi, Wilcox (Buckwell-India) Ltd., P. O. Box No. 289, New Delhi and Tractors (India) Ltd., P. O. Box No. 323, Calcutta-24. |
| 7. Mr. A. Ghatan         | } |  |
| 8. Shri K. R. Patel      | . | Representing Associated Exports Imports Corporation, 8-B, Lal Bazar Street, Calcutta-1.  |
| 9. „ S. Krishnamoorthy   | . | Representing Simpson & Co. Ltd., 202/203, Mount Road, Madras-2.  |
| 10. „ A. V. S. Mani      | . | Representing J. N. Marshall & Co., Savoy Chambers, 5, Wallace Street, Fort, Bombay.  |
| 11. „ B. M. Jothady      | . | Representing Parry & Co., Ltd., Post Box No. 12, Madras-1.   |
| 12. Mr. W. H. Thurgur    | } | Representing Greaves Cotton & Co. Ltd.,  |
| 13. Shri M. B. Bhaskare  | . | 1, Forges Street, Fort, Bombay.  |
| 14. „ L. S. Soman        | } |  |
| 15. „ L. G. Fernandes    | . | Representing George Oakes Ltd., P.O. Box No. 499, Bombay-1.  |

*Consumers :*

1. Shri N. Balakrishna . . . . . Representing Bombay Electric Supply & Transport Undertaking, Best House, Post Box No. 192, Bombay-1.
2. Mr. J. A. Rangil } . . . . . Representing Ruston & Hornsby (India) Ltd.,  
3. „ J. A. Meek } Forbes Street, Fort, Bombay.
4. Shri S. K. Shah . . . . . Representing Premier Automobiles Ltd.,  
Agra Road, Kurla, Bombay-37.
5. „ M. K. Mantri } . . . . . Representing Bomay State Road Transport  
6. „ H. K. Firodia } Corporation, Ghodbunder Road, Santa-  
cruz, Bombay-23.
7. „ B. Roy Chowdhury . . . . . Representing Directorate of Transportation,  
Government of West Bengal, 5, Nilgunge  
Road, Belghoria, 24-Parganas, West  
Bengal.
8. „ B. C. Chowdiah . . . . . Representing Western Railway, Churchgate,  
Bombay.
9. Mr. W. F. Broadbeck . . . . . Representing Tractor & Allied Equipment  
Mfrs. & Importers Assn., Ltd., C/o  
The Bombay Chamber of Commerce,  
Mackinnon Mackenzie Building, P.O.  
Box No. 473, Bombay.
10. Shri M. R. Kannan . . . . . Representing T. V. Sundram Iyengar & Sons,  
T. V. S. Bldg., West Veli Street, Madurai.
11. „ A. N. Daing } . . . . . Representing Calcutta Motor Dealers'  
12. „ P. K. Basu } Association, P-6, Mission Row Extension,  
Calcutta.
13. „ R. Jesanglal Shah } . . . . . Representing Honesty Trading Corpora-  
14. „ R. Jethalal Shah } tion, Beaumon Chambers, Meadows  
Street, Fort, Bombay.
15. „ S. Gurucharan Singh Sethi } . . . . . Representing Bombay Motor Merchants'  
16. „ S. B. Anand } Association, Ltd., Sukh Sagar, 3rd Floor,  
Sandhurst Bridge, Bombay-7.
17. „ N. M. Dalal } . . . . . Representing Indian Commercial Co. Ltd.,  
18. „ N. M. Saraya } Ghodbunder Road, Santacruz, Bombay-23.

*Government Departments :*

1. Col. V. P. S. Menon . . . . . Representing Ministry of Heavy Industries,  
Development Wing, Shahjahan Road,  
New Delhi.
2. Shri M. Sawney . . . . . Representing Ministry of Defence, Govern-  
ment of India, New Delhi.
3. Lt. Col. T. B. Poduval . . . . . Representing Institute of Armament  
Studies, Kirkee, Poona-3.
4. Shri B. S. Kokatay . . . . . Representing Collector of Customs, Bombay.
5. „ A. B. Rao . . . . . Representing Indian Standards Institution,  
19 University Road Civil Lines, Delhi-8.



# APPENDIX III

(Vide paragraph 10.7.1)

*List of Cast iron pistons manufactured by India Pistons Ltd.*

Model	Bore	Ref. No.
Austin 4 Litre Truck . . . . .	3-7/16"	11012
Chevrolet 29.4 HP. . . . .	3 1/2"	11013
Chevrolet (Dome Type) . . . . .	3 1/2"	11013
Chevrolet 100 HP . . . . .	3-7/16"	12001
Commer 26.88 HP . . . . .	85 mm.	11014
Bedford Truck . . . . .	3-3/8"	11015
International KB . . . . .	3-5/16"	11016
David Brown . . . . .	3 1/2"	11037
Morris Commercial . . . . .	100 mm.	12013
David Brown . . . . .	3-5/8"	12028
Ferdson Major . . . . .	4-1/8"	13002
Indian Commercial . . . . .	110 mm.	13022
Ruston VRH . . . . .	4 1/2"	13023
Ruston 1 YHR . . . . .	5-5/8"	14503
Ruston 2 XHR . . . . .	6"	14504

# APPENDIX IV

[Vide Paragraph 11.2]

Statement showing country-wise imports of piston assemblies and their components during 1956

Country of consignment	Trunk piston assemblies of diameter 6" and below		Trunk pistons of diameter 6" and below		Trunk piston rings (excluding chromium plated rings) of diameter 6" and below		Gudgeon pins for trunk pistons of diameter 6" and below	
	Qty.	Value	Qty.	Rs.	Qty.	Value	Qty.	Value.
1	2	3	4	5	6	7	8	9
	Nos.	Rs.	Nos.	Rs.	Nos.	Rs.	Nos.	Rs.
United Kingdom	61,820 (x) (i)	6,80,231 (L)	40,541 (i)	7,73,558	94,712 (i)	3,35,873	17,942	37,959 (H)
United States of America	16,361 (i)	2,07,548 (L)	19,378 (x)	3,14,549 (L) (q)	26,861 (i)	2,00,438	110	1,109
Western Germany	15,132 (x) (i)	4,74,998	10,886 (x)	1,77,045 (H)	54,003 (i)	1,42,608 (L)	1,661	20,078
Denmark	96	278	(x)	1,556	630	12,291	..	..
Italy	360 (x)	3,065	120 (x)	4,922	1,346	11,094	..	..
Japan	70 (x)	2,619	(x)	118	8,368 (x)	22,133	585	937 (L)
Sweden	(x)	1,744	..	..	..	..	..	..
Netherlands	1 (x)	183 (H)	6	345 (H)	48	605	24	285
Canada	12	1,755	..	..	39	475	..	..
France	1	57	3	78	698	4,391	..	..
Singapore	56	495	..	..	..	..	..	..

1	2	3	4	5	6	7	8	9
Norway . . . . .	2	580 (H)	..	..	..	..	..	..
Czechoslovakia . . . . .	12	1,707	59	3,550 (H)	1,932	4,254 (L)	68	305
Australia . . . . .	..	..	34(x)	917	216	1,751	..	..
U. S. S. R. . . . .	..	..	4	114	..	..	..	..
Belgium . . . . .	..	..	292	2,577 (L)	10	44	4	12
Austria . . . . .	..	..	54	1,708	460	936	..	..
Portugal . . . . .	..	..	8	203	686	2,026	..	..
Switzerland . . . . .	..	..	..	..	275	2,114	..	..
Ceylon . . . . .	..	..	..	..	..	..	12	119
<b>Total.</b>	93,923 (x)(i)	13,75,260 (L) (H)	71,385(x)(i)	12,81,240 (L) (H) (q)	1,90,284 (x) (i)	7,41,053 (L)	20,406	59,904 (L) (H)

NOTE.—(i)—Incomplete, under reference;  
(x)—Not reported, under reference;  
(H) and (L)—Under reference;  
(q)—Value of parts also included.

# APPENDIX V

[Vide Paragraph 13'1]

Statement showing c. i. f. Prices, Customs Duty, Clearing charges and Landed Costs of Piston Assemblies, Piston Rings and Gudgeon Pins

Serial Number	Source of information	Origin of import	Date of import	Type and specification	C.i.f. price	Customs duty	Clearing charges	Landed cost
1	2	3	4	5	6	7	8	9
I. PISTON ASSEMBLIES								
1	Collector of Customs, Calcutta	West Germany	January-March, 1957.	Piston set	8.00	4.00	0.25	12.25
2	Calcutta Motor Dealers' Association, Calcutta.	U.K.	Ditto	Ditto	8.12	4.06	0.25	12.43
3	George Oates Private Ltd., Bombay.	Canada	March, 1957 (Quotation for replacement).	Piston assembly (Piston pin and retainer assembly).	10.23	..	..	..
4	India Pistons (Private) Ltd., Madras.	U.K.	April, 1957 (Quotation).	Piston complete with Pin Circlips and rings.	10.00	..	..	..
1	Collector of Customs, Calcutta	West Germany	(ii) Chevrolet	(3 1/8" bore)	8.83	4.42	0.16	13.41
2	Calcutta Motor Dealers' Association, Calcutta.		January-March, 1957.	Piston set (1941-50)				
3	Collector of Customs, Bombay	U. S. A.	November 1956	Piston 1941-50	10.50	5.25	0.25	16.00
4	Collector of Customs, Madras	U. S. A.	February 16, 1957.	Piston	10.67	5.34	0.04	16.05

1	2	3	4	5	6	7	8	9
					Rs.	Rs.	Rs.	Rs.
5	Indian Motor Parts and Accessories Private Ltd., Madras.	U.S.A.	March, 1957	3½" and 3 9/16"	10.67	5.34	0.04	16.05
6	Indian Pistons (Private) Ltd., Madras.	U.K.	April, 1957 (Quotation)	Piston complete with pin circlips and rings.	10.34	..	..	..
			(iii) <i>Standard Vanguard</i> (85 mm bore)					
1	Calcutta Motor Dealers' Association, Calcutta.	U.K.	Jan.-March, 1957	Piston Assembly	9.50	4.75	0.37	14.52
		West Germany	Ditto	Ditto	10.00	5.00	0.25	15.25
2	Standard Motor Products of India Ltd., Madras.	U.K.	31-12-1956	Piston assembly (For own production).	10.80	5.40	0.11	16.31
		U.K.	March, 1957	Piston assembly (For original equipment).	10.80	..	..	..
		U.K.	Ditto	Piston Assembly (For replacement market).	19.34	..	..	..
3	Collector of Customs, Calcutta	U.K.	Jan.-March, 1957.	Piston Assembly	10.50	5.25	0.37	16.12
		West Germany	Ditto	Ditto	10.00	5.00	0.25	15.25
4	India Pistons (Private) Ltd., Madras.	U.K.	April, 1957	Piston complete with pin circlips and rings.	12.29	..	..	..
			(iv) <i>Royal Enfield</i> (2.751" bore)					
1	Collector of Customs, Calcutta	U.K.	January-March, 1957.	Piston	11.00	5.50	0.25	16.75
2	India Pistons (Private) Ltd., Madras.	U.K.	April, 1957 (Quotation).	Piston complete with pin, circlips and rings.	12.40	..	..	..

(v) *Perkins P-6 (3.501" bore)*

1	Calcutta Motor Dealers' Association.	U.K. . . . .	January—March, 1957.	Piston assembly (1937-52)	14.66	7.33	0.29	22.28
2	Collector of Customs, Calcutta . . . . .	West Germany	Ditto . . . . .	Ditto	13.33	6.66	0.29	20.28
3	Collector of Customs, Bombay . . . . .	U.K. . . . .	October, 1956	Piston Pin & Ring Assembly.	23.03	9.87	0.19	23.09
4	George Oakes Private Ltd., Bombay	U.K. . . . .	Ditto . . . . .	Ditto	23.03	9.87	0.19	33.09
5	Collector of Customs, Madras . . . . .	U.K. . . . .	29-10-1956	Piston . . . . .	24.00	10.05	0.64	34.69
6	India Motor Parts and Accessories Private Ltd., Madras.	U.K. . . . .	January, 1957	Piston assembly . . . . .	18.60	7.89	0.05	26.54
7	K. B. Thaker & Co., Bombay . . . . .	U. K. . . . .	April, 1957 (Quotation).	Specialoid piston complete with Gudgeon pin and piston rings.	19.24	..	..	..
8	Rane (Madras) Ltd., Madras . . . . .	U. K. . . . .	12-12-1956	Piston with Gudgeon Pin	16.00	..	..	..
9	India Pistons (Private) Ltd., Madras.	U. K. . . . .	April, 1957 (Quotation).	Piston complete with piston rings and gudgeon pin.	21.91	9.31	0.13	31.35
				Piston complete with pin, circlips and rings.	19.30	..	..	..

(vi) *Ruston and Hornsby VSH Diesel (4½" bore)*

1	Collector of Customs, Bombay . . . . .	U. K. . . . .	November, 1956	Piston . . . . .	41.12	20.56	0.75	62.43
2	India Pistons (Private) Ltd., Madras.	U. K. . . . .	April, 1957 (Quotation).	Piston complete with pin, circlips and rings.	43.30	..	..	..

1	2	3	4	5	6	7	8	9
					Rs.	Rs.	Rs.	Rs.
				(vii) <i>Pelters AV-1 (80 mm bore)</i>				
1	Parry & Company Ltd., Madras	U.K.	April, 1957	Piston complete with piston rings, gudgeon pin and circlips.	16.27	8.13	0.41	24.81
2	India Pistons (Private) Ltd., Madras	U.K.	April, 1957 (Quotation).	Piston complete with pin, circlips and rings.	22.29	..	..	..
II. PISTON RINGS								
(i) <i>Ford V-8 (3 1/16" bore)</i>								
1	Collector of Customs, Calcutta	U.K.	Jan.-March, 1957	Piston ring set	20.00	10.00	0.25	30.25
2	George Oakes Private Ltd., Bombay.	Canada	March, 1957 (Quotation for replacement).	Ring set	21.61	..	..	..
3	India Pistons (Private) Ltd., Madras	U.K.	April, 1957 (Quotation).	Piston ring per engine set	23.63	..	..	..
(ii) <i>Chevrolet (3 1/8" bore)</i>								
1	Collector of Customs, Calcutta	U.K.	January-March, 1957.	Piston ring set (1940-47)	12.00	6.00	0.25	18.25
2	India Pistons (Private) Ltd., Madras	U.K.	April, 1957 (Quotation).	Piston rings per engine set.	12.69	..	..	..
(iii) <i>Standard Vanguard (85 mm bore)</i>								
1	Standard Motor Products of India Ltd., Madras	U.K.	March, 1957 (Quotation)	Oil ring set	2.34	..	..	..
		U.K.	Ditto.	Compression ring set	1.89	..	..	..

2	Collector of Customs, Calcutta	U. K.	January-March, 1957.	Piston rings	9'00	4'50	0'12	13'62
		West Germany	Ditto	Ditto	8'00	4'00	0'12	12'12
3	India Pistons (Private) Ltd., Madras.	U. K.	April, 1957 (Quotation).	Piston rings per engine set.	11'81	..	..	..
			(iv) <i>Royal Enfield (2'751" bore)</i>					
4	India Pistons (Private) Ltd., Madras.	U. K.	April, 1957 (Quotation).	Piston rings per engine set.	3'30	..	..	..
			(v) <i>Perkins P-6 (3'501" bore)</i>					
1	India Pistons (Private) Ltd., Madras.	U. K.	April, 1957 (Quotation).	Piston rings per engine set.	32'00	..	..	..
2	Collector of Customs, Bombay	U. K.	March, 1956	Piston ring set (1951-52)	27'80	11'87	0'03	39'70
3	Madras Auto Service Ltd., Madras.	U. K.	December 19, 1956.	Piston ring set	22'22	9'48	0'30	32'00
4	Rane (Madras) Ltd, Madras	U. K.	December 1956.	Specialoid piston ring set with cord segments.	22'48	9'53	0'22	32'23
			(vi) <i>Ruston &amp; Hornsby VSH diesel engine (4½" bore)</i>					
1	Collector of Customs, Bombay	U. K.	November, 1956	Piston ring set	6'87	3'44	0'25	10'56
2	Graves Cotton & Co. Ltd., Bombay.	U. K.	November-December, 1956.	Piston ring set	5'25	2'62	0'08	7'95
3	India Pistons (Private) Ltd., Madras.	U. K.	April, 1957 (Quotation).	Piston rings per engine set.	4'45	..	..	..



1	2	3	4	5	6	7	8	9
				(vii) <i>Petters AV-1 (80 mm bore)</i>				
1	Parry & Co. Ltd., Madras	U. K.	March, 1957 (Quotation).	Piston ring set	Rs. 3.47	Rs. 1.73	Rs. 0.09	Rs. 5.29
2	India Pistons (Private) Ltd., Madras.	U. K.	April, 1957 (Quotation).	Piston rings per engine set.	2.90	..	..	..
				III. GUDGEON PINS				
				(i) <i>Ford V-8 (3 1/16" bore)</i>				
1	Collector of Customs, Calcutta	U. S. A.	January-March, 1957.	Gudgeon pin	1.25	0.63	0.01	1.89
2	India Pistons (Private) Ltd., Madras.	U. K.	Ditto	Ditto	1.50	0.75	0.01	2.26
		U. K.	April, 1957 (Quotation).	Ditto	1.22	..	..	..
				(ii) <i>Chevrolet (3 1/8" bore)</i>				
1	Collector of Customs, Calcutta	U. S. A.	January-March, 1957.	Gudgeon pin (1937-48)	0.97	0.48	0.01	1.46
2	Collector of Customs, Bombay	U. S. A.	November, 1956	Gudgeon pin (1941-50)	1.00	0.50	0.01	1.51
3	India Pistons (Private) Ltd., Madras.	U. K.	April, 1957 (Quotation).	Gudgeon pin	1.39	..	..	..
				(iii) <i>Standard Vanguard (85 mm bore)</i>				
1	Collector of Customs, Calcutta	U. K.	January 1957.	Gudgeon pin	2.00	1.00	0.01	3.01

2	India Pistons Madras.	U. K..	April, 1957 (Quotation).	Gudgeon pin	1.61	..	..
(iv) <i>Royal Enfield</i> (2.751" bore)							
1	India Pistons Madras.	U. K..	April, 1957 (Quotation).	Gudgeon pin	1.39	..	..
(v) <i>Perkins P-6</i> (3.501" bore)							
1	Collector of Customs, Bombay	U. K..	October	Gudgeon pin	5.03	2.16	7.21
2	Collector of Customs, Calcutta	U. K..	January—March, 1957.	Gudgeon pin	2.00	1.00	3.01
(vi) <i>Ruston &amp; Hornsby VSH Diesel</i> (4½" bore)							
3	India Pistons Madras.	U. K..	April, 1957 (Quotation).	Gudgeon pin	3.72	..	..
1	Greaves Cotton & Co. Ltd., Bombay.	U. K..	October, 1956	Gudgeon pin	9.75	4.87	14.65
2	Collector of Customs, Bombay	U. K..	November, 1956	Gudgeon pin	11.12	5.56	16.80
3	India Pistons Madras.	U. K..	April, 1957 (Quotation).	Gudgeon pin	3.83	..	..
(vii) <i>Pettlers AV-1</i> (80 mm bore)							
1	Parry & Co. Ltd., Madras	U. K..	March, 1957 (Quotation).	Gudgeon pin	4.80	2.40	7.32
2	India Pistons Madras.	U. K..	April, 1957 (Quotation).	Gudgeon pin	3.44	..	..

# APPENDIX VI

[Vide Paragraph 14.3f]

## INDIA PISTONS (PRIVATE) LTD., MADRAS

Statement showing fair ex-works prices of pistons (complete), piston rings and gudgeon pins estimated for the future

Model and make	Ford V-8	Chevro- let	Standard Vanguard	Royal Enfield	Perkins P-6	Ruston & Hornsby	Petters AV-1
Bore	3 1/16"	3 1/8"	85 mm	2 7/8"	3 5/16"	4 1/8"	80 mm
Piston Ref. No.	12291/ 11004	9069/ 11013	12319/ 11022	11250/ 10030V	0630030/ C11029	10281/ 13008	10056/ 11010
I	2	3	4	5	6	7	8
<b>A. Piston Complete</b>							
Net material . . . . .	As.	As.	As.	As.	As.	As.	As.
Conversion charges . . . . .	98'40	149'63	119'51	112'69	207'95	435'23	177'71
Interest on working capital . . . . .	39'92	57'08	50'28	32'29	32'42	89'83	42'56
Return on block . . . . .	4'17	5'12	6'27	4'44	7'38	16'34	6'72
Engineering fees . . . . .	17'35	21'89	18'16	17'73	19'30	21'00	19'00
	11'04	12'01	11'58	13'01	20'00	31'82	13'01
Total fair ex-works price . . . . .	170'88	246'88	204'65	180'16	287'05	594'22	259'00
or Rs. . . . .	10'68	15'43	12'79	11'26	17'94	37'14	16'19

## B. Compression Ring

Net material	(Width 0.092")	(Width 1/8")	(Width 5/64")	(Width 1/16")	(Width 3/32")	(Width 1/8")	(Width 3/32")
Conversion charges	1.47	1.73	1.21	0.85	1.40	2.37	1.20
Interest on working capital	3.49	3.42	4.09	3.81	3.02	5.83	3.26
Return on block	0.16	0.16	0.16	0.15	0.13	0.26	0.13
Engineering fees	0.81	0.84	0.89	0.74	0.80	0.95	0.79
	0.52	0.52	0.52	0.57	0.52	0.68	0.52

Total fair ex-works price . . .

or Rs.	6.45	6.67	6.87	6.12	5.87	10.09	5.90
	0.40	0.42	0.43	0.38	0.37	0.63	0.37

## C. Oil Control Ring

Net material	(Width 0.155")	(Width 3/16")	(Width 5/32")	(Width 5/32")	(Width 1/4")	(Width 1/4")	(Width 3/16")
Conversion charges	1.79	2.54	1.62	1.68	3.05	3.49	1.99
Interest on working capital	5.47	6.46	4.47	4.98	6.80	12.92	5.18
Return on block	0.22	0.28	0.18	0.21	0.31	0.50	0.22
Engineering fees	0.85	0.93	0.85	0.85	1.00	1.09	0.89
	0.75	0.75	0.75	0.80	0.75	0.95	0.75

Total fair ex-works price . . .

or Rs.	9.08	10.96	7.87	8.52	11.91	18.95	9.03
	0.57	0.68	0.49	0.53	0.74	1.18	0.56

1	2	3	4	5	6	7	8
	(2746/ P 2004)	(2306/P 2013)	(4040/P 2006)	(3014/P 1030)	(3951/P 2019)	(Imported)	(2515/P 2010)
<i>D. Gudgeon Pila</i>							
Net material . . . . .	5.23	8.78	7.08	5.01	20.28		16.22
Conversion charges . . . . .	10.36	10.77	9.31	11.35	23.22		19.47
Interest on working capital . . . . .	0.43	0.56	0.46	0.45	1.25		1.03
Return on block . . . . .	5.28	5.28	5.28	5.28	5.28		5.28
Engineering fees . . . . .	1.50	1.84	2.10	1.83	4.50		4.91
Total fair ex-works price . . . . .	22.80	27.23	24.23	23.92	54.53		46.91
or Rs. . . . .	1.43	1.70	1.51	1.50	3.41		2.93